



Commonwealth of Massachusetts  
Executive Office of Energy & Environmental Affairs

## Department of Environmental Protection

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July 15, 2016

AVX Corporation  
ATTN: Mr. Evan Slavitt  
801 17<sup>th</sup> Avenue South, P.O. Box 867  
Myrtle Beach, SC 29578

RE: **NEW BEDFORD-BWSC**  
Release Tracking Number: **4-0000601**  
Former Aerovox Facility  
740 Belleville Avenue  
**COMMENTS/CLARIFICATION RELATIVE TO THE  
IMMEDIATE RESPONSE ACTION PLAN  
MODIFICATION**

Dear Mr. Slavitt:

The Massachusetts Department of Environmental Protection (MassDEP or the Department), Bureau of Waste Site Cleanup is tasked with ensuring the cleanup of oil and hazardous material releases pursuant to the Massachusetts Oil and Hazardous Material Release Prevention and Response Act (c. 21E). The law is implemented through regulations known as the Massachusetts Contingency Plan (310 CMR 40.0000 et seq. – the MCP). Both M.G.L. c. 21E and the MCP require the performance of response actions to provide for the protection of harm to health, safety, public welfare and the environment which may result from releases and/or threats of releases of oil and/or hazardous material at disposal sites.

Through the MCP, MassDEP is currently regulating a release of oil and/or hazardous materials (OHM) that has occurred at the former Aerovox property located at 740 Belleville Avenue, New Bedford, Massachusetts (the Site). The term "Site," as defined in the June 10, 2010 Administrative Consent Order (2010 ACO) entered into between MassDEP, the Massachusetts Attorney General's Office and AVX Corporation (AVX) "...shall mean any place or area where a release of oil and/or hazardous material at or from the property [at 740 Belleville Avenue] which occurred before the Effective Date [of the ACO] has come to be located, except for any such places or areas that are part of the New Bedford Harbor Superfund Site include, but are not limited to, any land area, bank or water body located seaward of the mean high water level at the Property and running along the mean high water level in a northward and southward direction from the Property... the Site includes the sheet pile wall previously installed at the Property" and to which MassDEP has assigned Release Tracking Number (RTN) 4-0000601. AVX has been identified as a Potentially Responsible Party (PRP) for the Site.

**PROPOSED IMMEDIATE RESPONSE ACTION PLAN MODIFICATION**

On April 14, 2016, AECOM submitted an IRA Plan Modification (IRA Plan Mod) to MassDEP on your behalf. As stated within the IRA Plan Mod, the objectives include: removing recoverable DNAPL in the vicinity of MW-15D and MW-15B from the shallow and deep overburden and from shallow bedrock aquifers; and removing shallow soil (above the peat layer) identified to contain DNAPL in the vicinity of UV-17 and MIP-23.

The IRA Plan Mod proposes to remove the recoverable DNAPL in the vicinity of monitoring well MW-15D by installing an active free-product recovery system (FPRS) consisting of groundwater extraction and recirculation into the overburden aquifer at a shallower depth to generate gradients "...capable of initiating migration of mobile subsurface DNAPL to the recovery well for ultimate extraction." This system will consist of two wells: a recovery well with a pump to collect DNAPL in a solid-bottom sump that serves as a collection point for the DNAPL and a shallower pump to extract the groundwater and create the groundwater gradients referenced above. A second shallow well will be installed adjacent to the recovery well to discharge extracted groundwater to the shallow overburden aquifer to enhance the recirculation of groundwater.

The DNAPL in the shallow overburden aquifer (above the peat) and shallow bedrock aquifer will be recovered with a passive FPRS using a skimmer system to remove the DNAPL from the recovery well water column as well as DNAPL that accumulates within the incorporated solid-bottom sumps.

Sonic drilling methods are proposed for the installation of all the wells associated with both the active and passive FPRSs. Performance monitoring of the FPRSs is anticipated to include monthly gauging and tallying of recovered DNAPL. Operation and Maintenance activities will include belt inspections and replacements as necessary and periodic DNAPL recovery drum removal.

AECOM also indicates that temporary electrical power will be installed for the operation of the deep overburden FPRS. However, the passive FPRS belt skimmers will be powered using solar energy.

As part of the IRA Plan Mod, AECOM proposes to excavate and remove the DNAPL-impacted soil in the vicinity of UV-17 and MIP-23. The removal effort will be limited to the areas where soil sampling, MIP and UVOST results indicated that DNAPL may be present above the peat layer. AECOM indicated that the soil removal efforts will allow for the visual spot inspection of the shore side of the existing sheet pile wall. AECOM also indicated that removal of soil in this area will facilitate the proposed New Bedford greenway development, which includes this portion of the disposal site.

Assessment activities using a Geoprobe will be completed prior to excavation to confirm the limits of the highly impacted areas and depth of the peat layer (AECOM contends that DNAPL is not currently found below the peat layer in this area). Excavated soils are anticipated to require disposal at a licensed RCRA/TSCA incinerator.

Dewatering and odor/emissions control equipment will be used during the excavations. Dewatering liquids will be collected in a frac tank, sampled and analyzed, and disposed in accordance with state and federal requirements.

The IRA Plan Mod was presumptively approved on May 5, 2016. However, MassDEP has reviewed the IRA Plan Mod and determined that certain components of the IRA Plan Mod required additional clarification. Accordingly, MassDEP engaged in discussions with Marilyn Wade, Licensed Site Professional (LSP)-of-Record for the Site, on June 13, 2016 and again on June 15, 2016, to clarify and better define the IRA Plan Mod. The outcomes of these discussions are provided below.

**IMMEDIATE RESPONSE ACTION PLAN MODIFICATION COMMENTS**

Given that MassDEP received the IRA Plan Mod on April 14, 2016, the IRA Plan Mod was presumptively approved on May 5, 2016 pursuant to 310 CMR 40.0420(9). The work described in the IRA Plan Mod has been initiated consistent with this approval. However, MassDEP sought clarification regarding certain provisions of the IRA Plan Mod and provided comments to Marilyn Wade, LSP-of-Record for AVX Corporation, via telephone discussions on June 13, 2016 and again on June 15, 2016. The discussion points and the outcomes are summarized below:

1. MassDEP discussed the need to provide updated plans/figures that depict DNAPL zones in both plan view and cross-sectional views in the shallow overburden, deep overburden, and bedrock aquifers.

The LSP indicated a map view plan of the two areas proposed to be excavated had been prepared and provided a copy of these plans prior to the June 15, 2016 telephone conversation. In addition, the LSP indicated that these same plans/cross sectional views will be provided in the next status report. Given that the area in the vicinity of MW-15 is not going to be excavated as part of the IRA, the LSP indicated that no such plan/figures were to be completed for the vicinity of MW-15.

MassDEP accepted this response. However, MassDEP is hereby requesting that a more detailed plan and cross sections of contaminant distribution in the vicinity of the MW-15 cluster be incorporated into the Phase III Remedial Action Plan to assist in the evaluation of the remedial action alternatives for this location.

2. MassDEP requested that to evaluate the effectiveness of the proposed DNAPL recovery system, graphs of cumulative volumes removed from both the active and passive FPRs should be included in future IRA Status Reports with a narrative of the recovery systems.

The LSP indicated that this information would be included in the status reports.

3. The IRA Plan Mod states that “the circulation line will be fitted with a sample port to verify that phase separation is accomplished as designed”, and that no samples will be collected as the circulation is being accomplished within areas of known and existing dissolved phase impacts. MassDEP expressed concern that the DNAPL-impacted groundwater extracted from the deeper portion of the aquifer would create higher concentrations of contaminants in the groundwater in the shallow portion of the aquifer, and that the groundwater should be treated and monitored prior to re-injection.

The LSP indicated that extracted groundwater would be re-injected through a separate re-injection well into the same vertical zone of the aquifer and in close proximity to the extraction well to increase the hydraulic gradient to mobilize DNAPL to the extraction well. More specifically, the extraction and reinjection wells will be screened within the same ten feet of elevation as the current DNAPL containing monitoring well screen of MW-15D. MassDEP accepted this response.

4. MassDEP requested that groundwater elevation monitoring be conducted during groundwater re-circulation and if the monitoring demonstrates a change in flow direction away from the recovery zone, the recirculation should be terminated and a modification implemented to ensure re-circulation.

The LSP clarified that given the fact that groundwater elevations and gradients will change with tidal fluctuations, it would be difficult to observe any artificially induced changes in groundwater elevation.

Therefore, water level data will not be usable in evaluating recirculation in the recovery zone for purposes of this IRA. The LSP also indicated that water level measurements and DNAPL depth and thickness will be measured during each site visit (which will be scheduled for every two weeks). The LSP also noted that the groundwater re-injection well will be installed in close proximity to the DNAPL extraction well and therefore, the groundwater would not likely flow away from the extraction well. MassDEP and the LSP agreed that the measurement of changes in groundwater elevation was therefore not necessary. However, the LSP agreed to discuss any significant changes observed during the implementation of the IRA with MassDEP. MassDEP accepted this response.

5. MassDEP requested additional information relative to the operation and maintenance of the skimmer belts proposed to be used. Specifically, MassDEP requested information relative to performance tests for the belts; details of belt skimmer construction; a discussion as to whether PCB or TCE NAPL will sorb onto the belt, and, if sorption does occur, a discussion should be included as to whether the contaminants will desorb into the groundwater in the well as they are being returned to the surface for collection; and a discussion on the potential for skimmer belt fouling.

The LSP stated that the belt skimmer is an industry-accepted technology, and that the belt is specifically chosen to absorb PCBs and TCE and is not expected to desorb back into the aquifer. The LSP also stated that the entire system, including the belts, is scheduled to be inspected biweekly. If issues with belt performance are observed, the LSP will contact the requisite personnel and MassDEP personnel and rectify the situation. MassDEP accepted this response.

6. More detailed information is needed with respect to the pre-excavation soil sampling performed to determine the limits of the DNAPL-impacted soil. It is not clear whether laboratory analyses will be completed or other tests, such as shake tests, to evaluate for DNAPL. The approach should be outlined in the IRA design package.

During discussions, the LSP indicated that the soil boring program has been completed, the extent of potential DNAPL in the soil was determined using visual and olfactory observations, and the proposed excavation area was expanded based on the results of this investigation. The LSP further explained that previous assessment (particularly the UVOST) indicated that DNAPL was not likely in the soil below the peat layer. The LSP indicated that MassDEP will be provided with the boring logs once they are completed. MassDEP accepted this response.

7. MassDEP requested clarification regarding how the limits of the highly impacted area are determined and this information should be included in the IRA Design Package (as indicated in the IRA Status report "DNAPL removal will be undertaken in these discrete shallow areas through excavation, removal and off-site disposal of the DNAPL impacted soils. This removal effort is limited spatially to those areas where the soil sampling, MIP and UVOST results indicated that DNAPL may be present above the peat layer...").

The LSP indicated that, in addition to the pre-characterization conducted, visual observations and field screening equipment will be used during excavation to determine the limits of the excavation. MassDEP accepted this response.

8. MassDEP commented that soil in the vicinity of UV-17 contains PCBs and TCE at concentrations above their upper concentration limits (UCLs), which may be indicative of DNAPL. However, soil samples from depths greater than 10' were not analyzed for TCE and/or PCBs in UV-17 to evaluate concentration trends (increasing or decreasing) with depth. No groundwater monitoring wells are located in the area of UV-17 to evaluate the presence of DNAPL. AVX proposes to excavate down to

the peat layer in this area. It is possible that DNAPL is located at depths below the peat layer and the sheet pile wall. Given that UV-17 is in close proximity to the sheet pile wall, potential EPA dredging may also cause migration of DNAPL, if present at depth, toward the Acushnet River. Without additional data in this area it is difficult to evaluate whether excavation may cause DNAPL to pool at depths below 13' bgs (the estimated depth of the sheet-pile wall), and thus, be available to migrate to the river during EPA dredging. Therefore, the pre-excavation geoprobe sampling should extend below the peat layer to better delineate the extent of DNAPL-impacted soil.

MassDEP also commented that the soil at the MIP-23 location contains PCBs above UCLs at depths ranging between 0-2' bgs to 5-6' bgs. PCBs are present but not at concentrations above UCLs or Soil Category S-3 Soil Standards, at depths between 6' bgs and 26' bgs. VOCs were not analyzed in soil samples collected from this area at depths greater than 6' bgs. Therefore, it is not known if TCE or other chlorinated solvents are present at DNAPL concentrations at depth at this location. The nearest monitoring well, MW-2B, is a bedrock monitoring well installed to a depth of 35.67' bgs and not an appropriate indicator of whether DNAPL exists in the deeper overburden aquifer. Given this information, it may be prudent to include geoprobe sampling at depth in this area as well.

During discussions regarding this comment, the LSP indicated the UV-17 soil boring sampling and analyses was the confirmation step in larger MIP and UVOST assessment tasks conducted across the waterfront and at depth down to the top of rock. The MIP and UVOST did not indicate the presence of DNAPL below the peat. Sampling results elsewhere within the Site did not exhibit signs of DNAPL immediately below the peat. No VOC analytical data was generated for areas below 10' bgs in UV-17 based on previous MIP data, UVOST data, visual observations, and PID screening information that did not indicate a significant presence of VOCs.

Similarly, for the MIP-23 area, the LSP stated the MIP and UVOST evaluations did not indicate the presence of DNAPL below the peat. The MIP-23 boring was screened for VOCs down to the top of rock, and soils between 6' and 26' bgs did not exhibit significant PID readings. Shallow soil at MIP-23 did not contain CVOCs above Category S-3/GW-3 Standards. Furthermore, the nearest monitoring well, MW-2B, was installed to make the location a well triplet, with MW-2 and MW-2A. The soil samples from the installation of MW-2B did not indicate the presence of CVOCs above Category S-3/GW-3 Standards in shallow or deep soils. In each of the three wells, the levels of CVOCs were below Category GW-3 Standards, and the PCB concentrations in these three wells are not indicative of DNAPL.

MassDEP was present during follow up geoprobe boring activities completed by AVX on July 6, 2016 to further evaluate subsurface conditions in the area of UV-17 in an effort to delineate the extent of peat that would be removed during IRA activities. Visual and olfactory observations indicated that the peat itself in this area is heavily contaminated with DNAPL. However, the soil immediately below the peat did not contain DNAPL or other visual/olfactory observations indicating the presence of DNAPL. The LSP stated that boring logs completed for this evaluation will be provided once finalized. MassDEP accepted this approach.

9. The results of pre-excavation soil sampling to be conducted in the vicinity of UV-17 and MIP-23 should be submitted to MassDEP prior to excavation.

The LSP indicated that soil sampling was limited to composite samples from each of the two excavation areas and analyzed for waste disposal characterization. The LSP will provide MassDEP with these results prior to excavation activities.

It should be noted that the approval of the disposal facility must be obtained from the EPA Toxic Substances Control Act (TSCA) Program.

10. The text does not include a provision that the excavation area may be extended if contamination is encountered at the edge of the initially planned excavation. The excavation may reveal additional areas of apparent contamination beyond the limits outlined by geoprobe sampling, and every attempt should be made to remove as much of the most contaminated material to the extent possible.

The LSP indicated that pre-excavation geoprobe borings have been completed, and the area of excavation has been increased based on soil boring logs. If, during excavation, it appears, based on visual and olfactory observations and PID screening, that DNAPL exists in the soil, additional soil will be removed. MassDEP accepted this response.

11. MassDEP requested that confirmatory soil samples be collected at the base of the excavation and the sidewalls before backfilling the excavation.

The LSP indicated that the intent of the excavation is not to excavate to a particular concentration but to remove highly contaminated soil based on visual and olfactory observations and PID screening. Therefore, additional analytical data will not generate any new or significant data and is therefore not necessary for this IRA. MassDEP accepted this response.

12. Contingencies for DNAPL recovery if DNAPL is observed during excavation should be included in the IRA Plan Mod.

The LSP agreed that if DNAPL was observed during the excavation, MassDEP will be contacted and a plan to recover the DNAPL will be implemented. In addition, the LSP indicated that the excavation will occur during low tide to minimize the infiltration of groundwater during excavation but that dewatering equipment will be available and will be used in conjunction with other methods to capture DNAPL as needed. MassDEP requests that notification occur within 2 hours of observing NAPL in the excavation.

13. MassDEP requires that a detailed plan to monitor PCBs and CVOCS in ambient air during implementation of the IRA actions must be prepared and implemented prior to the IRA activities.

The LSP indicated that the Health and Safety Plan for the response actions include the monitoring of both ambient air and the breathing zone during excavation. The monitoring stations will be set up based on wind direction to cover the work zone.

14. MassDEP originally requested that IRA Status Reports be submitted on a monthly basis during the work associated with this IRA Plan Mod. However, the LSP indicated that the field work associated with this IRA Mod Plan will be completed within a month to two months.

The LSP suggested that weekly progress calls be held, and documented with minutes via email. Therefore, MassDEP requested that weekly email updates be submitted to MassDEP. The emails will be uploaded to the site file viewer by MassDEP personnel. MassDEP agrees with this approach.

15. MassDEP requested that the LSP inform them of when the sheet-pile wall was to be exposed at the excavations at UV-17 and MIP-23 so that MassDEP can directly observe the condition of the wall. MassDEP also stated that this IRA Plan Mod may need to be re-evaluated based on these observations

and that this IRA Plan Mod and results of any inspections do not preclude the need to replace the wall in the future.

The LSP indicated MassDEP will be informed of the date(s) of the excavation so that MassDEP may observe the response actions. MassDEP will inform the EPA of the dates.

16. The Phase II report indicates that PCBs and TCE are present in the soil in the vicinity of MW-15 at concentrations above their UCLs above the peat layer ranging in depth between 0-2' bgs up to 5-7' bgs, based on data provided for surrounding borings (MIP-47, MIP-15, MIP-46 and MIP-45). The concentration of PCBs and TCE decreases at and within the peat layer, but concentrations above the UCLs are encountered in the soil at depths ranging between 19' bgs and 30' bgs. Given the depths of the contamination, MassDEP commented that excavation may be feasible and more expedient to remove the DNAPL than an active/passive FPRS. Please indicate whether AVX has considered excavation of DNAPL impacted soil in the area of MW-15, and if so, why was this approach not proposed at this location.

The LSP stated that this was a much larger area than the other two excavations and that the excavation in the area around MW-15 contains key monitoring wells, is bounded on two sides by the sheet pile wall, and that excavation may undermine the sheet pile wall and the drainage ditch in this area, thus potentially exacerbating conditions. After discussions with the LSP, it was concluded that excavation in this area exceeds the objective of an IRA and that the contamination in the soil in the vicinity of MW-15 would be addressed as part of the Comprehensive Response Actions. MassDEP accepted this response.

17. MassDEP suggested that the peat layer be excavated with the contaminated soil above the peat layer. This will remove additional source material and minimize the potential for contaminating the fill material that is placed on top of the peat.

A discussion regarding the peat layer at MIP-23 led to an agreement that the peat layer in this area need not be removed based on the analytical data, which indicates that the peat is not contaminated (however, as indicated in item 10 above, if DNAPL is observed in the peat during excavation, it will be removed).

Given the heavy contamination within the peat layer at UV-17, the LSP and AVX Corporation have agreed to remove the entire peat layer within the limits of the excavation. The peat will be replaced with a low permeability fill material. On July 7, 2016, the LSP provided MassDEP with a drawing that depicts the estimated expanded area and depth of excavation. Additional soil boring advancement has been completed as described in item 8 above. The visual and olfactory observations confirm that the peat in this area is impacted with DNAPL. Removal of this peat is anticipated to occur during excavation activities as described.

#### **ADDITIONAL NECESSARY RESPONSE ACTIONS**

If it is determined that the active/passive free-product recovery system is not adequately removing the DNAPL, and therefore not achieving the objectives of the IRA to prevent the potential migration of DNAPL into the Acushnet River in response to the scheduled EPA dredging of the New Bedford Harbor, MassDEP may require that AVX implement a containment system to prevent migration of the DNAPL in response to the EPA dredging.

If you have any questions regarding this matter, please contact Angela Gallagher at (508) 946-2790. All future communications regarding this matter must reference Release Tracking Number 4-0000601.

Sincerely,

A handwritten signature in black ink, appearing to read "Gerard M.R. Martin".

Gerard M.R. Martin  
Deputy Regional Director  
Bureau of Waste Site Cleanup

M/AG/ag

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RETURN RECEIPT REQUESTED

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